

# NICHOLAS FREEMAN MEHRLE

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## EDUCATION

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**Johns Hopkins University** **Baltimore, MD**  
M.A. Physics and Astronomy 5/2016  
B.S. Physics 5/2016  
– **Additional Majors:** Mathematics & Applied Mathematics and Statistics  
– **GPA:** 3.91/4.0  
– Departmental and general honors  
– Dean's list award every semester

## MISCELLANEOUS

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**Computer Skills:** Python, Java, JavaScript, C, C++, Matlab, Mathematica, R, HTML, CSS,  $\text{\LaTeX}$ , Solid-Works, VBA  
**Organizations:** Phi Beta Kappa, Sigma Pi Sigma, Johns Hopkins Mock Trial, Wading Team  
**Testing:** Physics GRE - 960/990 (92nd percentile)  
General GRE - V: 165/170 (95th), Q: 169/170 (97th), W: 5.5/6 (98th)

## EMPLOYMENT & RESEARCH

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**University of Maryland** **College Park, MD**  
Faculty Assistant - Department of Astronomy 12/2106 - Present  
– Developer for the Astronomy Workshop Extragalactic project  
– Design online educational tools to illustrate astronomy concepts  
astronomy concepts

**Optiver US LLC** **Chicago, IL**  
Derivatives Trader 7/2016 - 9/2016  
– Worked as high frequency options market maker including options pricing  
– Implemented machine-learning techniques to develop trading strategies  
– Performed time series analysis of market data

**Johns Hopkins University** **Batimore, MD**  
Research Assistant - Department of Physics and Astronomy 5/2013 - 5/2016  
– Constructed variable delay polarization modulator for microwave band telescope  
– Wrote master's thesis on telescope design and physics of Cosmic Microwave Background  
– Developed analog-to-digital sensor system

**CERN** **Geneva, CH**  
Research Assistant - CMS Experiment 1/2015 - 5/2015  
– University of Michigan Semester at CERN program scholar  
– Performed statistical analysis to discriminate production methods of Higgs boson  
– Contributed to statistical software package used on the CMS experiment

**Johns Hopkins University Applied Physics Lab** **Laurel, MD**  
Technical Intern - Applied Concepts and Technology Group 5/2014 - 8/2014  
– Developed and tested of feature estimation algorithms  
– Improved graphical UI of large scale simulation environment  
– integrated radar model into simulation environment

**Johns Hopkins University**  
Teaching Assistant - Department of Mathematics  
– Taught recitation section for Differential Equations  
– Rated 4.5/5 by students

**Baltimore, MD**  
9/2015 - 12/2015

**Johns Hopkins University**  
Tutor - Learning Den  
– Tutored group of students in mechanics and electricity & magnetism

**Baltimore, MD**  
8/2013 - 5/2014

## **PAPERS**

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- Thomas Essinger-Hileman, et al. "CLASS: the Cosmology Large Angular Scale Surveyor ", *Proc. SPIE* 9153, Millimeter, Submillimeter, and Far-Infrared Detectors and Instrumentation for Astronomy VII, 91531I (July 23, 2014); doi:10.1117/12.2056701
- John W. Appel, et al. "The Cosmology Large Angular Scale Surveyor (CLASS): 38-GHz Detector Array of Bolometric Polarimeters ", *Proc. SPIE* 9153, Millimeter, Submillimeter, and Far-Infrared Detectors and Instrumentation for Astronomy VII, 91531J (July 23, 2014); doi:10.1117/12.2056530
- *Design of the Cosmology Large Angular Scale Surveyor (CLASS) Polarization Modulators*. Master's thesis. Advisor: Tobias Marriage.